



JOB DESCRIPTION

Job Title: Maintenance Engineer - Electrical **Position Number:** 95-36

Incumbent: Vacant **Effective Date:** January 2025

Employment Status: Permanent **Pay Level** 11 **Bargaining Unit:** Yes No

Supervisor's Title: Director, Electrical Operations **Department:** Operations

SUMMARY

The Electrical Maintenance Engineer plays a vital role in supporting the Operations department by ensuring the reliability, performance, and safety of electrical assets across hydro and thermal generation plants, high-voltage substations, and protection and control systems. This position involves both planned and unplanned maintenance, troubleshooting, and supporting the commissioning of capital projects. The engineer is also responsible for reviewing periodic maintenance test reports, developing corrective actions, and assisting Asset Management and Engineering teams in formulating strategies for long-term asset management and optimization.

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1. Adhere to the corporation's high safety standards by following approved safe working plans and ensuring compliance during all electrical maintenance activities.
2. Assist in resolving unplanned maintenance issues, including failures of electrical systems such as SCADA, generation, high-voltage substations, protection, and control (P&C) assets.
3. Support the development of short-term and long-term electrical maintenance plans, focusing on strategies for upgrades, overhauls, and reducing long-term maintenance costs for hydro and thermal generating assets.
4. Assist in creating and implementing test plans for critical electrical assets, such as transformers, generators, protection relays, and high-voltage switchgear
5. Review preventive maintenance (PM) records, equipment inspection logs, and test sheets for electrical assets, creating follow-up work orders as needed.
6. Identifies and implements business process improvement.
7. Adhere to the Management of Change (MOC) process when modifying or changing to an engineered system.



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8. Investigate electrical outages and failures and develop corrective action work plans to restore system reliability and prevent recurrence.
9. Utilizes the Enterprise Asset Management (EAM) system to analyze trends in equipment maintenance needs such as breakdown, preventative maintenance, and corrective maintenance, average time between failures, and time to repair. Make recommendations for improvements to maintenance practices and frequency based on trends.
10. Mark up and redline electrical schematics, one-line diagrams, and technical drawings to reflect field conditions (as-builts).
11. Support the commissioning of capital projects, such as hydro and thermal unit overhauls and new electrical system installations and participates in factory acceptance testing (FAT) as a representative of the Operations department.
12. Actively collaborate with engineering and maintenance scheduling teams to ensure electrical project and maintenance activities are aligned and adequately supported.
13. Review all engineering work orders related to electrical assets and ensure a timely assignment within 7 days.
14. Prioritize electrical maintenance tasks to ensure critical work is completed first, and inform department leads about deferral risks.
15. Support the development and accuracy of the electrical equipment asset registry by ensuring detailed documentation of assets across generation, substations, and protection systems.
16. Identify, document, and assist in sourcing and procuring spare parts for critical electrical equipment to minimize downtime and support system reliability.
17. Provide technical guidance to electricians, technicians, technologists, and contractors during electrical maintenance and commissioning tasks, ensuring work is performed safely and efficiently.
18. Supervise contractors performing critical electrical maintenance tasks to ensure compliance with safety standards and quality expectations.
19. Review equipment test results, protection system assessments, and condition reports, providing recommendations to the Engineering and Capital Group.
20. Work collaboratively with Asset Management, Engineering, and Operations to optimize electrical asset reliability, condition-based monitoring, and maintenance strategies.



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21. Establish and maintain effective working relationships with third-party contractors, suppliers, and stakeholders involved in electrical maintenance activities.
22. Perform other related duties as assigned to support electrical operations and maintenance objectives across hydro, thermal, and high-voltage systems.
23. May be assigned to be the project manager of a minor maintenance capital project.

KNOWLEDGE, SKILLS, AND ABILITIES

- Registered Professional Electrical Engineer, eligible for registration in Yukon.
- Minimum of 4 years of experience in utilities, including technical and operational experience with electrical systems in power generation and high-voltage substations.
- Good working knowledge of various electrical generating assets, including hydro generators, thermal power plants, diesel-fueled generators, and renewable energy sources (wind, solar, BESS).
- Strong understanding of electrical systems, including generators, transformers, transmission lines and structures, substations, distribution systems, and associated control systems, visibility, metering, and communications.
- Experience troubleshooting electrical control systems, including protection and automation systems, with sufficient expertise to provide guidance.
- Proficiency in SCADA serial and TCP/IP communication protocols, such as DNP3, Modbus, ICMP, and NTP is highly beneficial.
- Ability to review and interpret electrical drawings, control schematics, wire termination sheets, operation manuals, and other technical documentation.
- Experience supporting field infrastructure commissioning, including commissioning of electrical equipment, control systems, and SCADA integration.
- Proficient in troubleshooting small to medium-sized electrical control systems and automation setups.
- Good understanding of workplace hazards in high-voltage substations and electrical generating facilities, with the ability to implement appropriate safety measures.
- Ability to develop and enforce safe work plans, conduct Job Safety Analysis (JSA), and facilitate tailboard safety meetings to ensure compliance with safety regulations.
- Familiarity with electrical protection systems, including SEL relays, RTAC, Beckwith relays, AcSELeRator Quickset, AcSELeRator RTAC, Emerson PLCs, and other protection and control devices.
- Strong problem-solving and analytical skills, with the ability to troubleshoot and resolve complex electrical issues.
- Strong multi-tasking, prioritization, and organizational skills to manage multiple projects and deadlines efficiently.
- Excellent interpersonal and communication skills, with a strong client-service orientation and the ability to work effectively with internal teams, contractors, and stakeholders.
- Proficiency in Windows-based software applications and work order management systems.



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- A valid class 5 driver's license.
- A valid first aid certificate.
- Ability to work effectively in a team and a diverse cultural environment.

WORKING CONDITIONS

This position works in a variety of environments, including high-voltage substations, power production plants, and office settings. Work includes outdoor environments, often in varying weather conditions, such as heat, cold, and inclement weather, to support field operations. Travel to remote communities and operational sites is required, occasionally involving extended stays.